

March 28, 2023

P-RFQ No. 2023-027

**REQUEST FOR QUOTATION**

**SUPPLY AND DELIVERY OF VARIOUS ELECTRICAL COMPONENTS OF SANTA MARIA WATER DISTRICT PUMP STATIONS**

The Santa Maria Water District (SMWD) hereinafter referred to as "the Purchaser", through its Bids and Awards Committee (BAC), invite interested parties to submit price quotation for the project, "**SUPPLY AND DELIVERY OF VARIOUS ELECTRICAL COMPONENTS OF SANTA MARIA WATER DISTRICT PUMP STATIONS**" through Small Value Procurement (Sec. 53.9 of R.A. No. 9184) with Approved Budget for the Contract (ABC) of One Hundred Eighty Nine Thousand Four Hundred Eleven and Forty Two Centavos Only (**₱189,411.42**).

	Description	Qty	Unit	Unit Cost	Total Amount
1	<b>BLOWER FAN</b> - for control panel, 24V DC, 4"	5	PC		
2	<b>CIRCUIT BREAKER 15A</b> - 120/240V, 10kA, bolt on	3	PC		
3	<b>CIRCUIT BREAKER 20A</b>	3	PC		
4	<b>CIRCUIT BREAKER MINI 10A</b>	5	PC		
5	<b>CONTROL LIQUID SENSOR RELAY L/H BW</b>	2	PC		
6	<b>ELECTRICAL TAPE BIG</b> - 16mm x 19mm x 16mm, black	2	ROLL		
7	<b>HEAVY DUTY PLUG</b>	5	PC		
8	<b>HOUR COUNTER</b>	1	PC		
9	<b>MAGNETIC CONTACTOR</b>	2	SET		
10	<b>MAGNETIC CONTACTOR</b>	1	PAIR		
11	<b>PILOT LIGHT GREEN 220V</b>	10	PC		
12	<b>RUBBER TAPE</b> - Black; self amalgamating tape 19mm x 9m	2	ROLL		
13	<b>SOLDERLESS CONNECTOR</b> - 8-10	3	PC		
14	<b>THERMAL OVERLOAD RELAY</b>	3	PC		
15	<b>TIMER</b>	2	PC		
16	<b>TIMER 11 PINS</b>	2	PC		
17	<b>TIMER PNEUMATIC</b>	3	PC		



18	<b>UNDER/OVER RELAY VOLTAGE SENSOR</b>	3	PC		
	*** nothing follows ***				
	*** please see attached technical specifications ***				

All items listed under the purchaser's specifications must be complied on a pass-fail basis.

Failure to meet any one of the requirements will result to rejection.

Likewise, it is understood that Purchaser's specifications are minimum requirements. The Bidder/Supplier may offer higher specifications or additional items, if any.

Procurement procedures will be conducted in accordance with the provisions of the Implementing Rules and Regulations (IRR) of Republic Act No. 9184 (Government Procurement Reform Act).

It is the intent of the Purchaser to evaluate the quotation for the item and award will be made to the quotation resulting in the overall lowest cost, meeting purchaser's technical specifications.

Likewise, in accordance with Section 54.6 and Appendix A of Annex "H" (Consolidated Guidelines for the Alternative Methods of Procurement) of the IRR of RA No. 9184, the supplier shall provide the following documentary requirements as a **condition for award** of the contract. The documents shall be attached together with the quotations.

1. PhilGEPS Registration Number
2. Mayor's/Business Permit
3. Photo Copy of Sample Official Receipt (OR)
4. Certificate of Registration (BIR FORM 2303); and
5. Duly Notarized Omnibus Sworn Statement.

Your prices must be quoted in Philippine Peso and must include the unit price and total price, inclusive of all taxes to be paid and other incidental cost to the delivery site if the contract is awarded.

All quotations may be typewritten or handwritten and may be placed in sealed envelope marked "**SUPPLY AND DELIVERY OF VARIOUS ELECTRICAL COMPONENTS OF SANTA MARIA WATER DISTRICT PUMP STATIONS**" (RFQ No. 2023-027) and must be submitted on or before **April 3, 2023, 11:00AM** at the SMWD main office. It may also be sent thru email on our official email address at [smwdbulacan@yahoo.com](mailto:smwdbulacan@yahoo.com) on the specified time stated above and address to the General Manager, Engr. Carlos N. Santos Jr.

Quotations shall be valid for thirty (30) calendar days from the deadline of submission of the same.

The delivery period shall be within **5 Days** from receipt of the Purchase Order (PO). The supplier should inform the purchaser at least two (2) days before the date of delivery. The Purchaser shall have the right to reject or to return the items that will be declared defective. The delivery will be made only during working days from 8:00 AM to 5:00 PM.



DELIVERY SITE: General Services Division of SMWD located at 302 J. P. Rizal St., Dulong Bayan, Santa Maria, Bulacan.

The prospective supplier shall submit the following:

- a) Duly accomplished Quotation Form; and
- b) Brochures of the items offered, if any.

The Santa Maria Water District reserves the right to accept or reject any quotation, and to annul the procurement process and reject all quotations at any time prior to Contract award, without thereby incurring any liability to the affected supplier or suppliers. SMWD also reserves the right to waive any required formality in the proposals received, and select the proposal which it determines to be the most advantageous to the government.

**Prepared by:**

**Noted by:**

Sgd.

Sgd.

**Romel P. Lazaga**  
**Procurement Assistant**

**Maria Leonora S. Romarate**  
**BAC Chairperson**

**PACKING UNITS**

Unit Type of Package 1: PCE

Number of Units in Package 1: 1

Package 1 Height: 7 cm

Package 1 Width: 5.4 cm

Package 1 Length: 9 cm

Package 1 Weight: 328.0 g

Unit Type of Package 2: BB1

Number of Units in Package 2: 4

Package 2 Height: 8.0 cm

Package 2 Width: 9.5 cm

Package 2 Length: 22.0 cm

Package 2 Weight: 1.376 kg

Unit Type of Package 3: S03

Number of Units in Package 3: 44

Package 3 Height: 30.0 cm

Package 3 Width: 30.0 cm

Package 3 Length: 40.0 cm

Package 3 Weight: 15.736 kg

**CONTROL LIQUID SENSOR RELAY L/H BW**

Line Voltage: 240 50/60 Hz

Secondary Volts: 220

**HOUR COUNTER**

HM-1

time range: 0 ~ 99999.99 hours

supply voltage: AC 110V, 220V 50 or 60Hz / DC 1~50V

HM-C 72mm x 72mm

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-  
-  
-

## SPECIFICATIONS

### **CIRCUIT BREAKER 15A**

device application: Distribution

poles description: 1P

number of protected poles: 1

[In] rated current: 15 A at 25 °C

network type: DC

trip unit technology: Thermal-magnetic

curve code: C

breaking capacity: 10 kA Icu at 220 V DC conforming to EN 60947-2

10 kA Icu at 220 V DC conforming to IEC 60947-2

6 kA Icu at 250 V DC conforming to EN 60947-2

6 kA Icu at 250 V DC conforming to IEC 60947-2

20 kA Icu at 110 V DC conforming to EN 60947-2

20 kA Icu at 110 V DC conforming to IEC 60947-2

utilization category: Category A conforming to EN 60947-2

Category A conforming to IEC 60947-2

suitability for isolation: Yes conforming to IEC 60947-2

Yes conforming to EN 60947-2

### **COMPLEMENTARY**

network frequency: 50/60 Hz

[Ue] rated operational voltage: 250 V DC

[Ics] rated service breaking capacity: 15 kA 75 % conforming to EN 60947-2 - 110 V DC

15 kA 75 % conforming to IEC 60947-2 - 110 V DC

4.5 kA 75 % conforming to EN 60947-2 - 250 V DC

4.5 kA 75 % conforming to IEC 60947-2 - 250 V DC

7.5 kA 75 % conforming to EN 60947-2 - 220 V DC

7.5 kA 75 % conforming to IEC 60947-2 - 220 V DC

[Ui] rated insulation voltage: 500 V DC conforming to IEC 60947-2

500 V DC conforming to EN 60947-2

[Uimp] rated impulse withstand voltage: 6 kV conforming to EN 60947-2

6 kV conforming to IEC 60947-2

contact position indicator: Yes

control type: Toggle

local signalling: ON/OFF indication

mounting mode: Fixed

mounting support: 35 mm symmetrical DIN rail

comb busbar and distribution block compatibility: Top or bottom: standard

9 mm pitches: 2

Net weight: 0.128 kg

Colour: White

mechanical durability: 20000 cycles

electrical durability: 3000 cycles 250 V DC

6000 cycles 250 V DC

provision for padlocking: Padlockable  
locking options description: In position O  
tightening torque: Power circuit: 2.5 N.m top or bottom  
earth-leakage protection: Without

#### **ENVIRONMENT**

Standards: EN 60947-2  
IEC 60947-2  
pollution degree: 3 conforming to EN 60947-2  
3 conforming to IEC 60947-2

overvoltage category: IV  
topicalization: 2 conforming to IEC 60068-2  
Operating altitude: 2000 m  
ambient air temperature for operation: -25...70 °C  
Ambient air temperature for storage: -40...85 °C

#### **PACKING UNITS**

Unit Type of Package 1: PCE  
Number of Units in Package 1: 1  
Package 1 Height: 7.0 cm  
Package 1 Width: 1.8 cm  
Package 1 Length: 8.5 cm  
Package 1 Weight: 112.0

#### **CIRCUIT BREAKER 20A**

##### **MAIN**

device application: Distribution  
poles description: 1P  
number of protected poles: 1  
[In] rated current: 20 A at 25 °C  
network type: DC  
trip unit technology: Thermal-magnetic  
curve code: C  
breaking capacity: 10 kA Icu at 220 V DC conforming to EN 60947-2  
10 kA Icu at 220 V DC conforming to IEC 60947-2  
6 kA Icu at 250 V DC conforming to EN 60947-2  
6 kA Icu at 250 V DC conforming to IEC 60947-2  
20 kA Icu at 110 V DC conforming to EN 60947-2  
20 kA Icu at 110 V DC conforming to IEC 60947-2  
utilization category: Category A conforming to EN 60947-2  
Category A conforming to IEC 60947-2  
suitability for isolation: Yes conforming to IEC 60947-2  
Yes conforming to EN 60947-2

##### **COMPLEMENTARY**

network frequency: 50/60 Hz  
[Ue] rated operational voltage: 250 V DC  
[Ics] rated service breaking capacity: 15 kA 75 % conforming to EN 60947-2 - 110 V DC  
15 kA 75 % conforming to IEC 60947-2 - 110 V DC  
4.5 kA 75 % conforming to EN 60947-2 - 250 V DC  
4.5 kA 75 % conforming to IEC 60947-2 - 250 V DC  
7.5 kA 75 % conforming to EN 60947-2 - 220 V DC

7.5 kA 75 % conforming to IEC 60947-2 - 220 V DC

[Ui] rated insulation voltage: 500 V DC conforming to IEC 60947-2

500 V DC conforming to EN 60947-2

[Uimp] rated impulse withstand voltage: 6 kV conforming to EN 60947-2

6 kV conforming to IEC 60947-2

contact position indicator: Yes

control type: Toggle

local signalling: ON/OFF indication

mounting mode: Fixed

mounting support: 35 mm symmetrical DIN rail

comb busbar and distribution block compatibility: Top or bottom: standard

9 mm pitches: 2

net weight: 0.128 kg

colour: White

mechanical durability: 20000 cycles

electrical durability: 3000 cycles 250 V DC

6000 cycles 250 V DC

provision for padlocking: Padlockable

locking options description: In position O

tightening torque: Power circuit: 2.5 N.m top or bottom

earth-leakage protection: Without

#### **ENVIRONMENT**

Standards: EN 60947-2

IEC 60947-2

pollution degree: 3 conforming to EN 60947-2

3 conforming to IEC 60947-2

overvoltage category: IV

topicalization: 2 conforming to IEC 60068-2

operating altitude: 2000 m

ambient air temperature for operation: -25...70 °C

ambient air temperature for storage: -40...85 °C

#### **PACKING UNITS**

Unit Type of Package 1: PCE

Number of Units in Package 1: 1

Package 1 Height: 7.0 cm

Package 1 Width: 1.8 cm

Package 1 Length: 8.5 cm

Package 1 Weight: 113.0

### **CIRCUIT BREAKER MINI 10A**

#### **MAIN**

poles description: 3P

number of protected poles: 3

[In] rated current: 10 A

network type: AC

trip unit technology: Thermal-magnetic

curve code: D

breaking capacity: 10000 A Icn at 415 V AC 50/60 Hz conforming to EN/IEC 60898-1

42 kA Icu at 12...133 V AC 50/60 Hz conforming to EN/IEC 60947-2

30 kA Icu at 220...240 V AC 50/60 Hz conforming to EN/IEC 60947-2  
15 kA Icu at 380...415 V AC 50/60 Hz conforming to EN/IEC 60947-2  
10 kA Icu at 440 V AC 50/60 Hz conforming to EN/IEC 60947-2  
20 kA Icu at 100...133 V DC conforming to EN/IEC 60947-2

utilization category: Category A conforming to EN/IEC 60947-2

### **COMPLEMENTARY**

network frequency: 50/60 Hz

[Ue] rated operational voltage: 440 V AC 50/60 Hz

magnetic tripping limit: 12 x In +/- 20 %

[Ics] rated service breaking capacity: 21 kA 50 % conforming to EN/IEC 60947-2 - 12...133 V AC 50/60Hz

15 kA 50 % conforming to EN/IEC 60947-2 - 220...240 V AC 50/60 Hz

7.5 kA 50 % conforming to EN/IEC 60947-2 - 380...415 V AC 50/60 Hz

5 kA 50 % conforming to EN/IEC 60947-2 - 440 V AC 50/60 Hz

7500 A 75 % conforming to EN/IEC 60898-1 - 415 V AC 50/60 Hz

20 kA 100 % conforming to EN/IEC 60947-2 - 100...133 V DC

limitation class: 3 conforming to EN/IEC 60947-2

[Ui] rated insulation voltage: 500 V AC 50/60 Hz conforming to EN/IEC 60947-2

[Uimp] rated impulse withstand voltage: 6 kV conforming to EN/IEC 60947-2

contact position indicator: Yes

control type: Toggle

local signalling: Trip indicator

mounting mode: Clip-on

mounting support: Rail

9 mm pitches: 6

Height: 85 mm

Width: 54 mm

Depth: 78.5 mm

Net weight: 0.375 kg

Colour: White

mechanical durability: 20000 cycles

electrical durability: 10000 cycles

provision for padlocking: Padlockable

connections – terminals: Single terminal (top or bottom) 1...25 mm<sup>2</sup> rigid

Single terminal (top or bottom) 1...16 mm<sup>2</sup> flexible

wire stripping length: 14 mm for top or bottom connection

tightening torque: 2 N.m top or bottom

earth-leakage protection: Separate block

### **ENVIRONMENT**

Standards: EN/IEC 60947-2

EN/IEC 60898-1

IP degree of protection: IP20 conforming to IEC 60529

pollution degree: 3 conforming to EN/IEC 60947-2

topicalization: 2 conforming to IEC 60068-1

relative humidity: 95% at 55 °C

Ambient air temperature for operation: -35...70 °C

Ambient air temperature for storage: -40...85 °C



**PACKING UNITS**

Unit Type of Package 1: PCE

Number of Units in Package 1: 1

Package 1 Height: 7 cm

Package 1 Width: 5.4 cm

Package 1 Length: 9 cm

Package 1 Weight: 328.0 g

Unit Type of Package 2: BB1

Number of Units in Package 2: 4

Package 2 Height: 8.0 cm

Package 2 Width: 9.5 cm

Package 2 Length: 22.0 cm

Package 2 Weight: 1.376 kg

Unit Type of Package 3: S03

Number of Units in Package 3: 44

Package 3 Height: 30.0 cm

Package 3 Width: 30.0 cm

Package 3 Length: 40.0 cm

Package 3 Weight: 15.736 kg

**CONTROL LIQUID SENSOR RELAY L/H BW**

Line Voltage: 240 50/60 Hz

Secondary Volts: 220

**HOUR COUNTER**

HM-1

time range: 0 ~ 99999.99 hours

supply voltage: AC 110V, 220V 50 or 60Hz / DC 1~50V

HM-C 72mm x 72mm

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## **MAGNETIC CONTACTOR (2 SET)**

Product or component type

Contactors

Contactors application

Motor control

Resistive load

Utilisation category

AC-1

AC-3

AC-4

AC-3e

Poles description

3P

[Ue] rated operational voltage

Power circuit:  $\leq 690$  V AC 25...400 Hz

Power circuit:  $\leq 300$  V DC

[Ie] rated operational current

25 A (at  $<60$  °C) at  $\leq 440$  V AC AC-3 for power circuit

40 A (at  $<60$  °C) at  $\leq 440$  V AC AC-1 for power circuit

25 A (at  $<60$  °C) at  $\leq 440$  V AC AC-3e for power circuit

[Uc] control circuit voltage

220 V AC 50/60 Hz

Complementary

Motor power kW

5.5 kW at 220...230 V AC 50/60 Hz (AC-3)

11 kW at 380...400 V AC 50/60 Hz (AC-3)

11 kW at 415...440 V AC 50/60 Hz (AC-3)

15 kW at 500 V AC 50/60 Hz (AC-3)

15 kW at 660...690 V AC 50/60 Hz (AC-3)

5.5 kW at 400 V AC 50/60 Hz (AC-4)

5.5 kW at 220...230 V AC 50/60 Hz (AC-3e)

11 kW at 380...400 V AC 50/60 Hz (AC-3e)

11 kW at 415...440 V AC 50/60 Hz (AC-3e)

15 kW at 500 V AC 50/60 Hz (AC-3e)

15 kW at 660...690 V AC 50/60 Hz (AC-3e)

Motor power hp

3 hp at 230/240 V AC 50/60 Hz for 1 phase motors

2 hp at 115 V AC 50/60 Hz for 1 phase motors

7.5 hp at 230/240 V AC 50/60 Hz for 3 phases motors

15 hp at 460/480 V AC 50/60 Hz for 3 phases motors

20 hp at 575/600 V AC 50/60 Hz for 3 phases motors

7.5 hp at 200/208 V AC 50/60 Hz for 3 phases motors

Compatibility code

LC1D

Pole contact composition

3 NO

Contact compatibility

M2

Protective cover

With

[Ith] conventional free air thermal current

10 A (at  $60$  °C) for signalling circuit

40 A (at 60 °C) for power circuit  
Irms rated making capacity  
140 A AC for signalling circuit conforming to IEC 60947-5-1  
250 A DC for signalling circuit conforming to IEC 60947-5-1  
450 A at 440 V for power circuit conforming to IEC 60947  
Rated breaking capacity  
450 A at 440 V for power circuit conforming to IEC 60947  
[Icw] rated short-time withstand current  
240 A 40 °C - 10 s for power circuit  
380 A 40 °C - 1 s for power circuit  
50 A 40 °C - 10 min for power circuit  
120 A 40 °C - 1 min for power circuit  
100 A - 1 s for signalling circuit  
120 A - 500 ms for signalling circuit  
140 A - 100 ms for signalling circuit  
Associated fuse rating  
10 A gG for signalling circuit conforming to IEC 60947-5-1  
63 A gG at  $\leq 690$  V coordination type 1 for power circuit  
40 A gG at  $\leq 690$  V coordination type 2 for power circuit  
Average impedance  
2 mOhm - Ith 40 A 50 Hz for power circuit  
Power dissipation per pole  
3.2 W AC-1  
1.25 W AC-3  
1.25 W AC-3e  
[Ui] rated insulation voltage  
Power circuit: 690 V conforming to IEC 60947-4-1  
Power circuit: 600 V CSA certified  
Power circuit: 600 V UL certified  
Signalling circuit: 690 V conforming to IEC 60947-1  
Signalling circuit: 600 V CSA certified  
Signalling circuit: 600 V UL certified  
Overvoltage category  
III  
Pollution degree  
3  
[Uimp] rated impulse withstand voltage  
6 kV conforming to IEC 60947  
Safety reliability level  
B10d = 1369863 cycles contactor with nominal load conforming to EN/ISO 13849-1  
B10d = 20000000 cycles contactor with mechanical load conforming to EN/ISO 13849-1  
Mechanical durability  
15 Mcycles  
Electrical durability  
1.65 Mcycles 25 A AC-3 at  $U_e \leq 440$  V  
1.4 Mcycles 40 A AC-1 at  $U_e \leq 440$  V  
1.65 Mcycles 25 A AC-3e at  $U_e \leq 440$  V  
Control circuit type  
AC at 50/60 Hz standard  
Coil technology  
Without built-in suppressor module  
Control circuit voltage limits  
0.3...0.6  $U_c$  (-40...70 °C):drop-out AC 50/60 Hz

0.8...1.1 U<sub>c</sub> (-40...60 °C):operational AC 50 Hz

0.85...1.1 U<sub>c</sub> (-40...60 °C):operational AC 60 Hz

1...1.1 U<sub>c</sub> (60...70 °C):operational AC 50/60 Hz

Inrush power in VA

70 VA 60 Hz cos phi 0.75 (at 20 °C)

70 VA 50 Hz cos phi 0.75 (at 20 °C)

Hold-in power consumption in VA

7.5 VA 60 Hz cos phi 0.3 (at 20 °C)

7 VA 50 Hz cos phi 0.3 (at 20 °C)

Heat dissipation

2...3 W at 50/60 Hz

Operating time

12...22 ms closing

4...19 ms opening

Maximum operating rate

3600 cyc/h 60 °C

Connections - terminals

Control circuit: screw clamp terminals 1 1...4 mm<sup>2</sup> - cable stiffness: flexible without cable end

Control circuit: screw clamp terminals 2 1...4 mm<sup>2</sup> - cable stiffness: flexible without cable end

Control circuit: screw clamp terminals 1 1...4 mm<sup>2</sup> - cable stiffness: flexible with cable end

Control circuit: screw clamp terminals 2 1...2.5 mm<sup>2</sup> - cable stiffness: flexible with cable end

Control circuit: screw clamp terminals 1 1...4 mm<sup>2</sup> - cable stiffness: solid without cable end

Control circuit: screw clamp terminals 2 1...4 mm<sup>2</sup> - cable stiffness: solid without cable end

Power circuit: screw clamp terminals 1 2.5...10 mm<sup>2</sup> - cable stiffness: flexible without cable end

Power circuit: screw clamp terminals 2 2.5...10 mm<sup>2</sup> - cable stiffness: flexible without cable end

Power circuit: screw clamp terminals 1 1...10 mm<sup>2</sup> - cable stiffness: flexible with cable end

Power circuit: screw clamp terminals 2 1.5...6 mm<sup>2</sup> - cable stiffness: flexible with cable end

Power circuit: screw clamp terminals 1 1.5...10 mm<sup>2</sup> - cable stiffness: solid without cable end

Power circuit: screw clamp terminals 2 2.5...10 mm<sup>2</sup> - cable stiffness: solid without cable end

Tightening torque

Control circuit: 1.7 N.m - on screw clamp terminals - with screwdriver flat Ø 6 mm

Control circuit: 1.7 N.m - on screw clamp terminals - with screwdriver Philips No 2

Power circuit: 2.5 N.m - on screw clamp terminals - with screwdriver flat Ø 6 mm

Power circuit: 2.5 N.m - on screw clamp terminals - with screwdriver Philips No 2

Control circuit: 1.7 N.m - on screw clamp terminals - with screwdriver pozidriv No 2

Power circuit: 2.5 N.m - on screw clamp terminals - with screwdriver pozidriv No 2

Auxiliary contact composition

1 NO + 1 NC

Auxiliary contacts type

Type mechanically linked 1 NO + 1 NC conforming to IEC 60947-5-1

type mirror contact 1 NC conforming to IEC 60947-4-1

Signalling circuit frequency

25...400 Hz

Minimum switching voltage

17 V for signalling circuit

Minimum switching current

5 mA for signalling circuit

Insulation resistance

> 10 MOhm for signalling circuit

Non-overlap time

1.5 ms on de-energisation between NC and NO contact

1.5 ms on energisation between NC and NO contact

Mounting support

Plate  
Rail  
Environment  
Standards  
CSA C22.2 No 14  
EN 60947-4-1  
EN 60947-5-1  
IEC 60947-4-1  
IEC 60947-5-1  
UL 508  
IEC 60335-1  
Product certifications  
BV  
GL  
LROS (Lloyds register of shipping)  
GOST  
UL  
DNV  
CCC  
CSA  
RINA  
UKCA  
IP degree of protection  
IP20 front face conforming to IEC 60529  
Protective treatment  
TH conforming to IEC 60068-2-30  
Climatic withstand  
Conforming to IACS E10 exposure to damp heat  
conforming to IEC 60947-1 Annex Q category D exposure to damp heat  
Permissible ambient air temperature around the device  
-40...60 °C  
60...70 °C with derating  
Operating altitude  
0...3000 m  
Fire resistance  
850 °C conforming to IEC 60695-2-1  
Flame retardance  
V1 conforming to UL 94  
Mechanical robustness  
Vibrations contactor open (2 Gn, 5...300 Hz)  
Vibrations contactor closed (4 Gn, 5...300 Hz)  
Shocks contactor closed (15 Gn for 11 ms)  
Shocks contactor open (8 Gn for 11 ms)  
Height  
85 mm  
Width  
45 mm  
Depth  
92 mm  
Net weight  
0.37 kg  
Packing Units  
Unit Type of Package 1

Db

Number of Units in Package 1

1

Package 1 Height

5 cm

Package 1 Width

9.3 cm

Package 1 Length

11.4 cm

Package 1 Weight

410 g

Unit Type of Package 2

S02

Number of Units in Package 2

20

Package 2 Height

15 cm

Package 2 Width

30 cm

Package 2 Length

40 cm

Package 2 Weight

8.503 kg

Unit Type of Package 3

P06

Number of Units in Package 3

320

Package 3 Height

75 cm

Package 3 Width

60 cm

Package 3 Length

80 cm

Package 3 Weight

143 kg

## **MAGNETIC CONTACTOR (1 PAIR)**

Main

Product or component

type

Contactors

Device short name LC1D

Contactors application Motor control

Resistive load

Utilisation category AC-3

AC-4

AC-1

Poles description 3P

Power pole contact

composition

3 NO

[Ue] rated operational

voltage

Power circuit <= 300 V DC 25...400 Hz

Power circuit <= 690 V AC

[Ie] rated operational  
current

125 A 140 °F (60 °C) <= 440 V AC AC-1 power  
circuit

80 A 140 °F (60 °C) <= 440 V AC AC-3 power circuit

Motor power kW 22 KW 220...230 V AC 50/60 Hz AC-3)

37 KW 380...400 V AC 50/60 Hz AC-3)

45 KW 415...440 V AC 50/60 Hz AC-3)

55 KW 500 V AC 50/60 Hz AC-3)

45 KW 660...690 V AC 50/60 Hz AC-3)

45 KW 1000 V AC 50/60 Hz AC-3)

15 kW 400 V AC 50/60 Hz AC-4)

Motor power HP (UL /  
CSA)

20 Hp 200/208 V AC 50/60 Hz 3 phase

7.5 Hp 115 V AC 50/60 Hz 1 phase

15 Hp 230/240 V AC 50/60 Hz 1 phase

25 Hp 230/240 V AC 50/60 Hz 3 phase

60 Hp 460/480 V AC 50/60 Hz 3 phase

60 hp 575/600 V AC 50/60 Hz 3 phase

Control circuit type AC 50/60 Hz

[Uc] control circuit

voltage

220 V AC 50/60 Hz

Auxiliary contact

composition

1 NO + 1 NC

[Uimp] rated impulse

withstand voltage

8 kV conforming to IEC 60947

Overvoltage category III

[Ith] conventional free

air thermal current

10 A 140 °F (60 °C) signalling circuit

125 A 140 °F (60 °C) power circuit

Irms rated making

capacity

140 A AC signalling circuit IEC 60947-5-1

250 A DC signalling circuit IEC 60947-5-1

1100 A 440 V power circuit IEC 60947

Rated breaking capacity 1100 A at 440 V for power circuit conforming to IEC  
60947

[Icw] rated short-time

withstand current

640 A 104 °F (40 °C) - 10 s power circuit

990 A 104 °F (40 °C) - 1 s power circuit

135 A 104 °F (40 °C) - 10 min power circuit

320 A 104 °F (40 °C) - 1 min power circuit

100 A - 1 s signalling circuit

120 A - 500 ms signalling circuit

140 A - 100 ms signalling circuit

Associated fuse rating 10 A gG signalling circuit IEC 60947-5-1

200 A gG <= 690 V type 1 power circuit

160 A gG <= 690 V type 2 power circuit

Average impedance 0.8 mOhm - Ith 125 A 50 Hz power circuit

[Ui] rated insulation

voltage

Power circuit 600 V CSA

Power circuit 600 V UL

Power circuit: 1000 V conforming to IEC 60947-4-1  
Signalling circuit 690 V IEC 60947-1  
Signalling circuit 600 V CSA  
Signalling circuit 600 V UL  
Electrical durability 0.8 Mcycles 125 A AC-1 <= 440 V  
1.5 Mcycles 80 A AC-3 <= 440 V

3  
Power dissipation per  
pole

5.1 W AC-3  
12.5 W AC-1

Front cover With  
Mounting support Plate

Rail  
Standards CSA C22.2 No 14

EN 60947-4-1  
EN 60947-5-1

IEC 60947-4-1  
IEC 60947-5-1

UL 508

Product certifications GOST

RINA

CCC

CSA

BV

DNV

GL

LROS (Lloyds register of shipping)

UL

Connections - terminals Control circuit screw clamp terminals 2 0.00...

0.00 in<sup>2</sup> (1...2.5 mm<sup>2</sup>)flexible with cable end

Control circuit: screw clamp terminals 1 cable(s) 1...

2.5 mm<sup>2</sup>flexible with cable end

Control circuit screw clamp terminals 1 0.00...

0.01 in<sup>2</sup> (1...4 mm<sup>2</sup>)flexible without cable end

Control circuit screw clamp terminals 2 0.00...

0.01 in<sup>2</sup> (1...4 mm<sup>2</sup>)flexible without cable end

Control circuit screw clamp terminals 1 0.00...

0.01 in<sup>2</sup> (1...4 mm<sup>2</sup>)solid without cable end

Control circuit screw clamp terminals 2 0.00...

0.01 in<sup>2</sup> (1...4 mm<sup>2</sup>)solid without cable end

Power circuit connector 1 0.01...0.08 in<sup>2</sup> (4...

50 mm<sup>2</sup>)flexible without cable end

Power circuit connector 2 0.01...0.04 in<sup>2</sup> (4...

25 mm<sup>2</sup>)flexible without cable end

Power circuit connector 1 0.01...0.08 in<sup>2</sup> (4...

50 mm<sup>2</sup>)flexible with cable end

Power circuit connector 2 0.01...0.02 in<sup>2</sup> (4...

16 mm<sup>2</sup>)flexible with cable end

Power circuit connector 1 0.01...0.08 in<sup>2</sup> (4...

50 mm<sup>2</sup>)solid without cable end

Power circuit connector 2 0.01...0.04 in<sup>2</sup> (4...

25 mm<sup>2</sup>)solid without cable end

Tightening torque Control circuit: 1.2 N.m - on screw clamp terminals -

with screwdriver flat Ø 6 mm

Control circuit: 1.2 N.m - on screw clamp terminals -

with screwdriver Philips No 2

Power circuit 106.21 lbf.in (12 N.m) connector flat Ø

6 to Ø 8 mm



Power circuit: 12 N.m - on connector hexagonal  
screw head 4 mm  
Operating time 20...35 ms closing  
6...20 ms opening  
Safety reliability level B10d = 1369863 cycles contactor with nominal load  
EN/ISO 13849-1  
B10d = 20000000 cycles contactor with mechanical  
load EN/ISO 13849-1  
Mechanical durability 4 Mcycles  
Maximum operating rate 3600 cyc/h 140 °F (60 °C)  
Complementary  
Coil technology Without built-in suppressor module  
Control circuit voltage limits 0.85...1.1 Uc -40...131 °F (-40...55 °C) operational AC 60 Hz  
0.3...0.6 Uc -40...158 °F (-40...70 °C) drop-out AC 50/60 Hz  
0.8...1.1 Uc -40...131 °F (-40...55 °C) operational AC 50 Hz  
1...1.1 Uc 131...158 °F (55...70 °C) operational AC 50/60 Hz  
Inrush power in VA 245 VA 60 Hz 0.75 68 °F (20 °C))  
245 VA 50 Hz 0.75 68 °F (20 °C))  
Hold-in power consumption in VA 26 VA 60 Hz 0.3 68 °F (20 °C))  
26 VA 50 Hz 0.3 68 °F (20 °C))  
Heat dissipation 6...10 W 50/60 Hz  
4  
Auxiliary contacts type Mechanically linked 1 NO + 1 NC IEC 60947-5-1  
Mirror contact 1 NC IEC 60947-4-1  
Signalling circuit frequency 25...400 Hz  
Minimum switching current 5 mA signalling circuit  
Minimum switching voltage 17 V signalling circuit  
Non-overlap time 1.5 Ms on de-energisation between NC and NO contact  
1.5 ms on energisation between NC and NO contact  
Insulation resistance > 10 MOhm signalling circuit  
Contact compatibility M11  
Compatibility code LC1D  
Motor power range 55...100 KW 480...500 V 3 phase  
15...25 KW 200...240 V 3 phase  
30...50 KW 380...440 V 3 phase  
30...50 kW 480...500 V 3 phase  
Motor starter type Direct on-line contactor  
Contactor coil voltage 220 V AC standard  
Environment  
IP degree of protection IP20 front face IEC 60529  
Protective treatment TH IEC 60068-2-30  
Pollution degree 3  
Ambient air temperature for operation -40...140 °F (-40...60 °C)  
140...158 °F (60...70 °C) with derating  
Ambient air temperature for storage -76...176 °F (-60...80 °C)  
Operating altitude 0...9842.52 ft (0...3000 m)  
Fire resistance 1562 °F (850 °C) IEC 60695-2-1  
Flame retardance V1 UL 94  
Mechanical robustness Vibrations contactor open: 2 Gn, 5...300 Hz  
Shocks contactor open 8 Gn for 11 ms  
Vibrations contactor closed: 3 Gn, 5...300 Hz  
Shocks contactor closed 10 Gn for 11 ms  
Height 5.00 in (127 mm)  
Maximum Width 3.35 in (85 mm)  
Depth 5.12 in (130 mm)  
Net Weight 3.51 lb(US) (1.59 kg)

## **SOLDERLESS CONNECTOR**

- split bolt connectors
  - solderless
  - for copper and copperweld wire
- Size: 8-10

## **THERMAL OVERLOAD RELAY**

- contact current rating: 80A
- max operating temperature: 60°C
- min operating temperature: -20°C
- power circuit: 9 N.m – on screw clamp terminals
- control circuit: 1.7 N.m – on screw clamp terminals
- height: 123mm
- width: 75mm
- depth: 121mm

## **TIMER**

- A: ON-delay (power supply start)
- B: Flicker OFF start (power supply start)
- B2: Flicker ON start (power supply start)
- E: Interval (power supply start)
- J: One-shot (power supply start)

## **TIMER 11 PINS**

- 100 to 240 VAC (50/60 Hz)/100 to 125 VDC, 24 to 48 VAC (50/60 Hz)/12 to 48 VDC (24 to 48 VAC/VDC for H3CR-A8E) \*3
- operation mode: ON delay, flicker OFF start, flicker ON start, signal ON/OFF-delay, interval, signal ON/OFF-delay, one shot

## **TIMER PNEUMATIC**

- mounting location: front
- pole contact position: 1 NO + 1 NC
- contacts operation: time delay
- timer type: on delay
- time delay range: 1...3 s